

SCIENTIFIC RESULTS FROM THE MAMMAL SURVEY.

No. XV.

(A) THE INDIAN GERBILS OR ANTELOPE RATS.

BY R. C. WROUGHTON.

The group of animals represented by the name *Gerbillus indicus*, in Blanford's Mammalia (No. 264), was recognised as a sub-genus of *Gerbillus*, by Lataste, in 1882 (*Le Naturaliste*, ii. No. 16, p. 126) under the name *Tatera*. In 1902 it was accepted as a full Genus, whose members were found from Cape Town, northwards throughout Africa, and thence eastwards through Persia and India to Ceylon. The type species of the genus was "*Gerbillus indicus*, Hardwicke."

The tail in all the African species (except in *nigricauda*, from British East Africa, which has a wholly black tail) is dark above and pale below, whereas in all the Asiatic forms the tail is dark above and below, and pale on the sides. Mr. W. R. Sherrin has recently called my attention to a skull character, viz., the shape of the parietal bone, which on examination proves to be quite as constant a distinguishing character as the tail pattern. I now therefore have no hesitation in separating the African forms as a distinct Genus, which I propose to call.

TATERONA, gen. nov.

Genotype *Taterona afra* (*Gerbillus afer*, Gray.)

The tail is dark above and pale below (except in *nigricauda*, where it is entirely black), whereas in restricted *Tatera*, it is dark above and below and pale at the sides.

The lateral sutures of the parietal, from the post-orbital process backwards, run horizontally for a certain distance, then turn vertically downwards for a greater or less distance; and again return sharply to the horizontal. In *Taterona* the length of the middle vertical part of the suture varies a little, but never exceeds one-third of the distance between the post-orbital process and the downward turn, while in *Tatera* it is approximately equal to this distance.

In *Taterona* the basi-sphenoid appears to taper forward to a point or narrow neck, owing apparently to the turning upwards of the lateral edges, almost to the vertical; in *Tatera*, in which these edges are less turned upwards the basi-sphenoid does not seem to taper.

Finally in *Taterona* the bridge over the ante-orbital foramen is relatively wider than in *Tatera* and the plate below the lachrymal formed by the flattening of the front edge of the orbit

terminates more abruptly at its outer end in *Taterona* than in *Tatera*, in which latter it is also usually broader. These last two characters however, though true in a very large number of cases, are not constantly reliable.

The Geographical ranges of *Tatera* and *Taterona* correspond with the continents of Asia and Africa respectively.

When I studied these Gerbils some years ago (A.M.N.H. 7, Vol. XVII, p. 474, 1906), the material available from India was so scanty that I was forced to content myself with recognising the two species *indica* and *cuvieri*. With the material now made available by the Survey, I have been encouraged to make a fresh examination of the forms contained in the Genus *Tatera* as restricted above.

The species of the Genus *Tatera*.

The Genotype and earliest species of *Tatera* to be described was *G. indicus* by Mr. Hardwicke in 1807. The type locality was given as "India." The type itself is in the National Collection, but faded almost beyond recognition and with its skull much damaged. In 1838 Mr. Waterhouse separated *cuvieri*, also giving the type locality as "India". This type is likewise in the National Collection, having been received from the Zoological Society so long as 60 years ago. A manuscript catalogue of that Society's Collection before it was dispersed, which has recently been found shows that the specimen was from Arcot, Madras. In 1843, Mr. Gray, in his List of Mammalia, published the name *G. hardwickei* without any description, but he placed under it as synonyms "*G. indicus*, Waterhouse and *Mus (Gerbillus) indicus*, Elliot." Waterhouse in describing his *cuvieri* compares certain of its characters with those of an animal which he calls "*Gerbillus indicus*, Hardwicke", these characters, however, are such that any determination of the exact animal referred to is impossible. Mr. Elliot, however, gives a very full description of the Dharwar *Tatera* (under the name *Gerbillus indicus*, Hardwicke) of which several specimens, unfortunately in very poor condition, contributed by Mr. Elliot himself, are in the National Collection. As Mr. Waterhouse recorded nothing which does not apply to this animal we are entitled, indeed constrained, to accept the Dharwar *Tatera* as the animal indicated under the name *hardwickei* by Mr. Gray and to consider Mr. Elliot's specimens as the co-types. Ten years ago (A.M.N.H. 7, Vol. XVII, p. 499, 1906) I named *T. ceylonica*, basing it on a single immature specimen very badly made up. The characters, I recorded, are, on more careful examination and comparison with Survey specimens, shown to be misleading. It is now clear that the type of *ceylonica* is really a young animal of the species of which very long series were obtained in Ceylon by Major Mayor. Next the series obtained by

Mr. Prater in Sind, proves to be quite distinct from any other found in India, resembling in its colouring as is not unnatural, the Persian species *taniura*, *persica*, &c. Finally, some specimens collected by Col. Dunn, at Ambala, also require a name.

There are thus six species inhabiting India and Ceylon (but not Burma) which may be arranged in a key as follows :—

KEY.

- A Feet and tail short, only exceptionally exceeding 40 and 190 mm. respectively.
 - a General colour bright bay (Central India and Behar).
 - (1) *Tatera indica*, Hardwicke.
 - b General colour drab grey (Sind)
 - (2) *Tatera sherrini*, sp.n
 - c General colour pinkish buff (Ambala, Punjab).
 - (3) *Tatera dunni*, sp.n.
- B Feet and tail longer, at least 44 and 200mm. respectively.
 - a Anterior palatal foramina very long (10mm.), general colour bay (South Maratha Country)
 - (4) *Tatera hardwickei*, Gray.
 - b Anterior palatal foramina short (6-7mm.).
 - aa General colour buffy (South Madras)
 - (5) *Tatera curieri*, Waterhouse.
 - bb General colour reddish (Ceylon)
 - (6) *Tatera ceylonica*, Wroughton.

(1) *Tatera indica*, Hardwicke.

Mr. Hardwicke describes this species as "bright bay, mixed with pencil-like strokes of dark brown longitudinally disposed." Unfortunately no really mature specimens were obtained by the Survey in Kumaon, from whence so many of Mr. Hardwicke's specimens were obtained, but I think there can be no doubt that the bright bay animal found throughout Behar, Khandesh, Central Provinces, Kathiawar and Palanpur belongs to this species. The dimensions given by Mr. Hardwicke (reduced to millimetres) are head and body 167; tail 175. The average of eight adult specimens from Behar and Khandesh is head and body 175; tail 190; hindfoot 40; and ear 24. The type skull is badly broken, but its greatest length is 46 mm. and from a skull of this length from Midnapur I record the following measurements, *viz.*:—Condyllo-incisive length 41·5; zygomatic breadth 25; interorbital breadth 7; diastema 13; nasals 20; anterior palatal foramina 8·5; posterior palatal foramina 2·5; and upper molar tooth row 7.

So far as material is available it seems that the range of *indica* is Behar, the United Provinces, the Dekhan, and Gujerath.

(2) *Tatera sherrini*, sp. nov.

Size as in *indica*. Fur soft, silky, and fairly long (20-25 mm. on lower back). General colour above "ecru drab", below pure white. Face with usual pale markings before and behind the eyes. Feet white. Tail quadricolor, blackish above and below buff on the sides, tip (60-65 mm.) black, with lengthened hairs almost amounting to a tuft.

Skull smaller than in *indica*; the anterior palatal foramina short, the posterior exceptionally long; bullæ relatively large.

Dimensions of the type.—Head and body 162; tail 191; hind-foot 37; and ear 24.

Skull:—Greatest length 42; condylo-incisive length 37·5; zygomatic breadth 21; interorbital breadth 7; palatilar length 18·5; diastema 11·5; nasals 18; anterior palatal foramina 7; posterior palatal foramina 3·5; and molar tooth row 6.

Habitat.—Sind. Type from Jacobabad.

Type.—Old male. B. M. No. 15.11.1.88. Original number 427. Collected by Mr. S. H. Prater on the 21st February 1915 and presented to the National Collection by the Bombay Natural History Society.

Altogether 22 specimens were obtained by the Survey. The contrast between the drab colouring of *sherrini* and the ochraceous of *indica*, or even the buff of *dunni*, is very marked, and in this *sherrini* seems to approach much more closely to *taeniura*, *persica*, &c., the Persian forms.

I have much pleasure in naming this very distinct species after Mr. W. R. Sherrin, of the Natural History Museum, who has given such invaluable assistance in organising the storage of the Survey material and in many other ways.

(3) *Tatera dunni*, sp. n.

A *Tatera* of the same size as *sherrini*, from which it is distinguishable by its pale buffy coloration.

Size as in *sherrini*. Fur soft and silky, but shorter than in that species (15-20 mm. on the lower back). General colour above "pinkish buff," below pure white. Otherwise as in *sherrini*.

Skull slightly longer and stouter than in *sherrini*, the anterior palatal foramina markedly longer.

Dimensions of the type.—Head and body 160; tail 190 (? the Collector recorded it as 203, but it had obviously been distorted, the other specimens gave much smaller figures); hindfoot, 37; ear 24. Skull:—Greatest length 44; condylo-incisive length

39; zygomatic breadth 22; interorbital breadth 7; palatilar length 20; diastema 12; nasals 19·5; anterior palatal foramina 8·5; posterior palatal foramina 2·5; upper molar tooth row, 6·5.

Habitat.—Ambala, Punjab.

Type.—Old male. B. M. No. 9. 4. 6. 10. Original number 254. Collected on 11th January 1909 and presented to the National Collection by Col. H. N. Dunn, R.A.M.C.

Eleven specimens are in the Collection. This species seems to me, judging by the skull, to be more related to *indica* than to *sherrini*, and it is possible that, when more material is available from Rajputana and the Punjab, it may be found to intergrade with the former.

(4) *Tatera hardwickei*, Gray.

As recorded above Mr. Gray based this name on Mr. Elliot's description of the Dharwar *Tatera*, which gave the colour as "uniform bright fawn" and the dimensions as:—Head and body 175; tail 202; hindfoot 50; ear 22·5 (these are converted measurements). These fairly correspond with those of the Survey material in the Dharwar, Kanara, and Koyna Valley Collections, except in the size of the hindfoot. I have never seen a *Tatera* with a hindfoot of 50 mm., so no doubt Mr. Elliot's measurement was taken differently from the method now employed, which gives an average of 44 mm. (max. 45). The skull is noticeable for its very long anterior palatal foramina. The following are the dimensions of the skull of an adult male from Dhawar, viz., Greatest length 48; condylo-incisive length 41·5; zygomatic breadth 25; interorbital breadth 7; palatilar length, 21; diastema 13; nasals 21; anterior palatal foramina 10; posterior palatal foramina 2·5; upper molar tooth row 7.

This species extends from Dharwar District southwards along the wooded belt on the West Coast to Travancore, and north along the Konkan and Ghats, at least as far as Ratnagiri. We have not sufficient material to dogmatise on its extension inland, but we know that in the north it gives way to *indica* in Ahmednagar, and in the south to *cuvieri* in Bellary and Mysore.

(5) *Tatera cuvieri*, Waterhouse.

"General colour very bright cinnamon yellow" is Mr. Waterhouse's description, and he gives the dimensions as:—Head and body 177; tail 200; hindfoot 44; ears 15. These correspond very fairly with those of specimens from Seringapatam, Vijayanagar, Trichinopoly, &c., except that the ear measurement quoted is evidently not the same as that now in use. The type skull is badly broken, but I gather that its greatest length was about 44 mm. From the skull of an old female from Seringapatam, I can record the following

measurements, *viz.*, Greatest length 45; condylo-incisive length 39; zygomatic breadth 25; interorbital breadth 7; palatilar length 21; diastema 12; nasals 19; anterior palatal foramina 8; posterior palatal foramina 2; upper molar tooth row 7.

The range of *cuvieri* seems to be Bellary, Mysore and the whole country south of them, except the wooded Ghat strip on the West Coast.

(6) *Tatera ceylonica*, Wroughton.

I regret to say that in making these species I was misled by the condition of the solitary specimen, contributed by Mr. Kelaart. The fine series now available enables me to give a revised description of the species.

The general colour of the adult is very similar to that of *hardwickei* (not *cuvieri*, as would seem probable), but there is a somewhat larger admixture of black. The body dimensions are almost exactly those of *cuvieri*. The skull measurements of an adult female are as follows, *viz.*, Greatest length 47; condylo-incisive length 40; zygomatic breadth 23·5; interorbital breadth 8; palatilar length 20; diastema 12; nasals 20; anterior palatal foramina 7; posterior palatal foramina 2; upper molar tooth row 6·5.

Tatera ceylonica seems to be spread all over the Island.

(B) THE SLENDER LORIS OF MALABAR.

By R. C. WROUGHTON.

When dealing with the Mysore Collection (Vol. XXII, p. 285, 1913) Miss Ryley explained that the name *gracilis* for the Ceylon Loris must give place to the much older *tardigradus*, and that these Mysore specimens must be known as *lydekkerianus*, Cabrera, being practically topotypes of that species. Later, on receipt of the Coorg Collection, not having specimens from Ceylon for comparison, she recorded them (Vol. XXII., p. 494, 1913) as *tardigradus*. Since then Major Mayor having obtained some specimens in the two Ceylon Collections (Nos. 13 and 18), I have now compared the three series of Loris and have come to the conclusion that the animals of Ceylon and Coorg belong to distinct species, and I propose to found a new species for the Malabar Loris under the name:—

Loris malabaricus, sp. n.

A Loris markedly smaller than either *tardigradus* or *lydekkerianus* with a strong russet tinge.

Size smaller than either *tardigradus* or *lydekkerianus*. General colour above "wood brown" darker on the nape and upper back, but without any sign of a dorsal median dark stripe as in the

Mysore Loris. Hairs of dorsal area tipped with silvery as in the other forms. Below buff, dull white in the other two species.

Dimensions as below :—

	<i>malabaricus.</i>	<i>tardigradus.</i>	<i>lydekkerianus,</i>
Head and body	216	245	260
Tail	7
Hindfoot	45	51.5	54
Ear	25	32	32
Skull :—			
Greatest length	48	55	55
Condyllo-basal length	41.5	46	47.5
Zygomatic breadth	29	34	35
Upper molar tooth row	13	14	15

The Collector records that the type of *malabaricus* had a tail 7 mm. long when taken. Probably all have a very short tail which is not appreciable in a skin.

Habitat.—Malabar. Type from Kutta, South Coorg.

Type.—A young adult female. B. M. No. 13. 8. 22. 3. Original number 2586. Collected by Mr. G. C. Shortridge, on the 21st February, 1913, and presented to the National Collection by the Bombay Natural History Society.

The Survey obtained altogether four specimens while another from Travancore in the British Museum Collection also belongs to this species.

(C) A NEW "LEAF MONKEY" FROM THE SHAN STATES.

By R. C. WROUGHTON.

When writing the Shan States Report (J. B. N. H. S., Vol. XXII., p. 715, 1914) Miss Ryley recorded the local leaf monkey as *P. phayrei*. In the Mt. Popa Report when true *phayrei* had been received, I suggested (Vol. XXIII, pp. 464-465, 1915) that the Shan States animal might be *barbei*.

Three descriptions of *barbei* are available, viz.—Blyth's original description (J. A. S. B., xvi., p. 734, 1847), another in his Catalogue of the Mammalia in the Museum of the Asiatic Society (p. 14, 1863), and a third by Anderson (Ind. Mus. Cat., i., p. 48, 1811). Both Blyth and Anderson note that the shoulders and forelimbs are pale ("silvered," "greyish brown"), but neither of them notices the radiation of the hair from a single central point on the forehead. I wrote to Dr. Annandale of the Indian Museum, Calcutta, who replied that the type of *barbei* "is an old specimen which has been mounted and exhibited for the last 70 years. There is no crest on the top of the beast's head and no definite whorl of hair." Dr. Annandale had the head photographed and most kindly sent me a copy which is here reproduced.



Head of the type of *Pithecus barbei*, Elyth.

This evidence seems to me conclusive that *barbei* belongs to the section of the langurs which have the hair laid straight back from the forehead over the crown. The Shan States langur has a distinct centre from which the hair radiates, on the forehead, and cannot therefore be *barbei*, I propose therefore to describe it as new under the name:—

Pithecus shanicus, sp. n.

A leaf monkey with the hair on the forehead radiating from a single central point; smaller than any other Indian species having this character; most nearly approaching (amongst them) *hypoleucos* in general colour, but wanting the black limbs of that species.

Size small. General colour above a slaty grey with a paler brownish tinge on the upper back; hind limbs and base of tail slightly

washed with silvery; a dull whitish collar extending across the nape between (and including) the whiskers. Upper and lower lips white. Hands and feet black. Below sparsely haired, greyish white.

Skull more spherical (less elongate) and much smaller than in the true langurs; frontal ridges obsolescent, the flattened area immediately above them, so marked in *entellus*, *schistaceus*, &c., entirely absent, with a consequently shortened muzzle.

Dimensions of type.—Head and body 590; tail 755; hindfoot 168; ear 33. Skull:—Greatest length 107; condylo-basal length 83; zygomatic breadth 79; breadth across orbits 65; palatal length 37; upper molar tooth row 28.

Habitat.—Northern Shan States. (Type from Hsipaw, alt. 1,400').

Type.—Adult male. B. M. No. 14. 7. 8. 5. Original number 3080. Collected by Mr. G. C. Shortridge, on the 26th May 1913, and presented to the National Collection by the Bombay Natural History Society.

In all 20 specimens obtained. Dr. Anderson in his *Anat. and Zool. Researches* records having seen troops of monkeys, which he surmised to be *P. barbei*, but which were almost certainly these species "in the Valley of the Tapeng, in the centre of the Kakhien hills" and again "in the defile of the Irrawaddy, above Mandalay, on the left bank of the river."

These species fall in Blanford's key, into Section A, on account of the whorl of hair on the forehead, this arrangement though convenient is quite artificial, for *shanicus* is in no way closely related to the true langurs, but, as already stated, to the leaf monkeys such as *obscurus*, &c.

(D) PARADOXURUS NIGER AND HERMAPHRODITUS OF BLANFORD.

By R. C. WROUGHTON.

Of the five species placed by Blanford in his key to the genus *Paradoxurus*, one he places in a section, "B," by itself. This species is now generally recognised as belonging to a distinct genus, *Puguma*, mainly on the characters used by Blanford. The two species *aureus* and *jerdoni*, from Ceylon and Malabar respectively, are such strongly marked forms that they too may be left out of consideration here. Thus there remain the two names *niger* and *hermaphroditus*, under which Blanford has ranged all the true toddy-cats.

On laying out all the available material for comparison, it at once becomes clear that we have not only two, but five forms, as follows, *viz.*:—(1) a northern peninsular form, (2) a southern peninsular form, (3) an Assam form, (4) a Burmese form, and finally (5) a northern Malay form, which extends into our limits, at any rate throughout Tenasserim.

The following is a list of the names given at various times to the Indian toddy-cats, viz.:—

- 1778. *V. hermaphrodita*, (Pallas), Schreb. Säug., iii., p. 426.
- 1820. *V. prehensilis*, *nigra* and *bondar*, Desm. Mamm., pp. 208, 210.
- 1821. *P. typus*, F. Cuv., Hist. Nat. Mamm., pl. 186.
- 1828. *P. leucopus*, Ogilb., Zool. Journ., iv., p. 300.
- 1832. *P. pallasii*, *pennanti*, *crossi*, and *hamiltoni*, Gray, P. Z. S., pp. 65-68.
- 1836. *P. hirsutus*, Hodgs., As. Res., xix., p. 72.
- 1837. *P. strictus*, and *quadriscriptus*, Horsf., A. M. N. H. (2), xvi., pp. 105, 106.
- 1841. *P. felinus*, Wag., Schreb. Säug., Supp. ii., p. 349.
- 1855. *P. quinquelineatus*, and *musangjoides*, Gray, Ch. M. N. H., i., p. 579.
- 1864. *P. nigrifrons*, Gray, P. Z. S., p. 635.
- 1891. *P. nictitatus*, Tayl., J. B. N. H. S., vi., p.
- 1910. *P. vicinus*, Schw., A. M. N. H. (8), vi., p. 230.
- 1914. *P. hermaphryditus rarus*, Mill. Sm. Misc. Colls., lxi., 21, p. 2.

The name *hermaphroditus* undoubtedly represents a *Paradoxurus*, but is specifically indeterminable, and was recognised as such by Desmarest so long ago as 1820. The habitat was given as "Barbarey". Of Desmarest's three names the first, *prehensilis*, is I believe not specifically recognisable, the habitat is said to be Bengal. It is stated to be based on a drawing from a sketch by (?) B. Hamilton. The second name, *niger*, answers the description of the southern toddy-cat. Its despatch alive to Paris from Pondicherry confirms this diagnosis. It is true that Desmarest adds: "On la dit originaire des Molluques," but I attach little importance to this, which was more than probably the vendor's attempt to enhance the value of his goods. The third name, *bondar*, is again based on a sketch from one of (?) B. Hamilton's drawings, also with the habitat "Bengal". I cannot place it at all certainly, and find it safest to accept it as a synonym of *niger*, of which also the *typus* of Cuvier is another, as are also *leucopus*, Ogilb., and *nictitatus*, Taylor, these being albino examples from Orissa. Gray's names, *pallasii*, *pennanti*, *crossi* and *hamiltoni*, were all based on menagerie specimens and but for the fact that the types of *crossi* and *pallasii* are extant would all be indecipherable. These types show that *crossi* is the same species as *hirsutus*, Hodgson and *niger*, Desmarest. Horsfield's *strictus* and *quadriscriptus* represent the Assam form. Wagner's *felinus* and Gray's *nigrifrons*, *quinquelineatus*, and *musangjoides*, based on animals in captivity, are all equally beyond recognition. Miller's *rarus* represents the Tenasserim form.

These five forms may now be arranged in a key, as follows, viz. :—

- A. Back and sides not or only obscurely striped and spotted.
(North India) *crossi*, Gray.
- B. Back and sides distinctly striped and spotted.
 - a. Smaller, hindfoot 75-80 mm., greatest length of skull 105-110 mm. Ground colour gray. (South India) *niger*, Desmarest.
 - b. Larger, hindfoot 80-90 mm., greatest length of skull 115-120 mm.
 - a¹ Ground colour fulvous. (Assam) *strictus*, Horsfield.
 - b¹ Ground colour dull or buffy white
 - a² Crown of head black (Upper Burma) *birmanicus*, Wroughton.
 - b² No black crown (North Malay) *ravus*, Miller.

Paradoxurus crossi, Gray.

1832. *Paradoxurus crossi*, Gray, P. Z. S., p. 66.

1836. *Paradoxurus hirsutus*, Hodgson, As. Res., xix., p. 72.

1864. *Paradoxurus nigrifrons*, Gray, P. Z. S., p. 635.

A *Paradoxurus* showing ordinarily a mere smear of blackish (often amounting to a dark mauve brown rather than to black) on a grey ground.

Hair fairly long but rather coarse. Rarely showing definite stripes on the back and never the usual spots on the flanks. Hodgson records it from the Nepal Terai, whence it occurs westwards through Rohilcund, the Deccan and Central India to Rajputana.

Paradoxurus niger, Desmarest.

1820. *Viverra niger*, Desmarest, Mamm., p. 208.

1820. *Viverra bondar*, Desmarest, l. c., p. 210.

1821. *Paradoxurus typus*, F. Cuvier, Hist. Nat. Mamm., pl. 186.

1828. *Paradoxurus leucopus*, Ogilby, Zool. Journ., iv., p. 300 (albino).

1832. *Paradoxurus pallasii*, Gray, P. Z. S., p. 66.

1891. *Paradoxurus nictitans*, Taylor, J. B. N. H. S., vi., p. 2.

A smaller animal than the preceding and either of the following. The stripes and spots very heavily marked in deep black on a grey ground. The type was from Pondicherry; it ranges however from

Orissa on the east to Ceylon in the south and the Southern Mahra-tha Country in the north.

Paradoxurus strictus, Horsfield.

1837. *Paradoxurus strictus*, Horsfield, A. M. N. H. (2), xvi., p. 105.

1837. *Paradoxurus quadriscipus*, Horsfield, l. c., p. 106.

1910. *Paradoxurus vicinus*, Schwarz, A. M. N. H. (8), vi., p. 230.

A larger animal, about the size of *crossi*. Fur long and soft, the stripes and spots marked in black on a fulvous ground. Hodgson records it from the central region of Nepal, whence it ranges eastward through Darjiling, Bhutan Duars, and Assam. Schwarz's *vicinus* is a very brightly coloured specimen, with smaller measurements, but it is quite a young animal.

Paradoxurus birmanicus, sp. n.

A *Paradoxurus* of fully average size, with distinct black stripes and spots on a very pale, almost white, ground.

Size as in *strictus* and *crossi*. Fur shorter and coarser than in *strictus*. Head black, with the usual white blaze across the face, between the eyes and the ears. General colour above a dull white or very pale buffy grey, with the usual three median dorsal stripes, and with scattered spots arranged more or less in lines parallel to the stripes.

Skull as in *crossi*, &c., but lighter and somewhat smaller.

Dimensions of the type:—Head and body, 570; tail, 510; hind-foot, 85; ear, 48.

Skull:—Greatest length, 110; condylo-basal length, 109; zygomatic breadth, 60; palatilar length, 49; nasals, 25; back of m' to front of p³, 19.

Habitat:—Burma. Type from Mingun, near Sagaing, Upper Burma.

Type:—Old female. B. M. No. 14. 7. 19. 89. Original number, 3261. Collected by Mr. G. C. Shortridge on 10th July 1913. Presented to the National Collection by the Bombay Natural History Society.

This species seem to extend throughout Burma, including the Shan States, till it meets the intruding North Malay toddy-cat (*P. rarus*) in Tenasserim. It would seem also to extend eastwards into Siam. Schwarz's *cochinensis* from Camboja, and Kloss's *kutensis* seem both to be of this type, though both are much smaller.

Paradoxurus rarus, Mill.

1914. *Paradoxurus rarus*, Miller, Sm. Mix., Colls., lxi., 21, p. 2.

Very similar to *birmanicus*, but easily recognisable by the absence of the black on the crown. The type locality is Trong, S. W. Siam, but it undoubtedly ranges through Tenasserim, and probably into South Pegu.